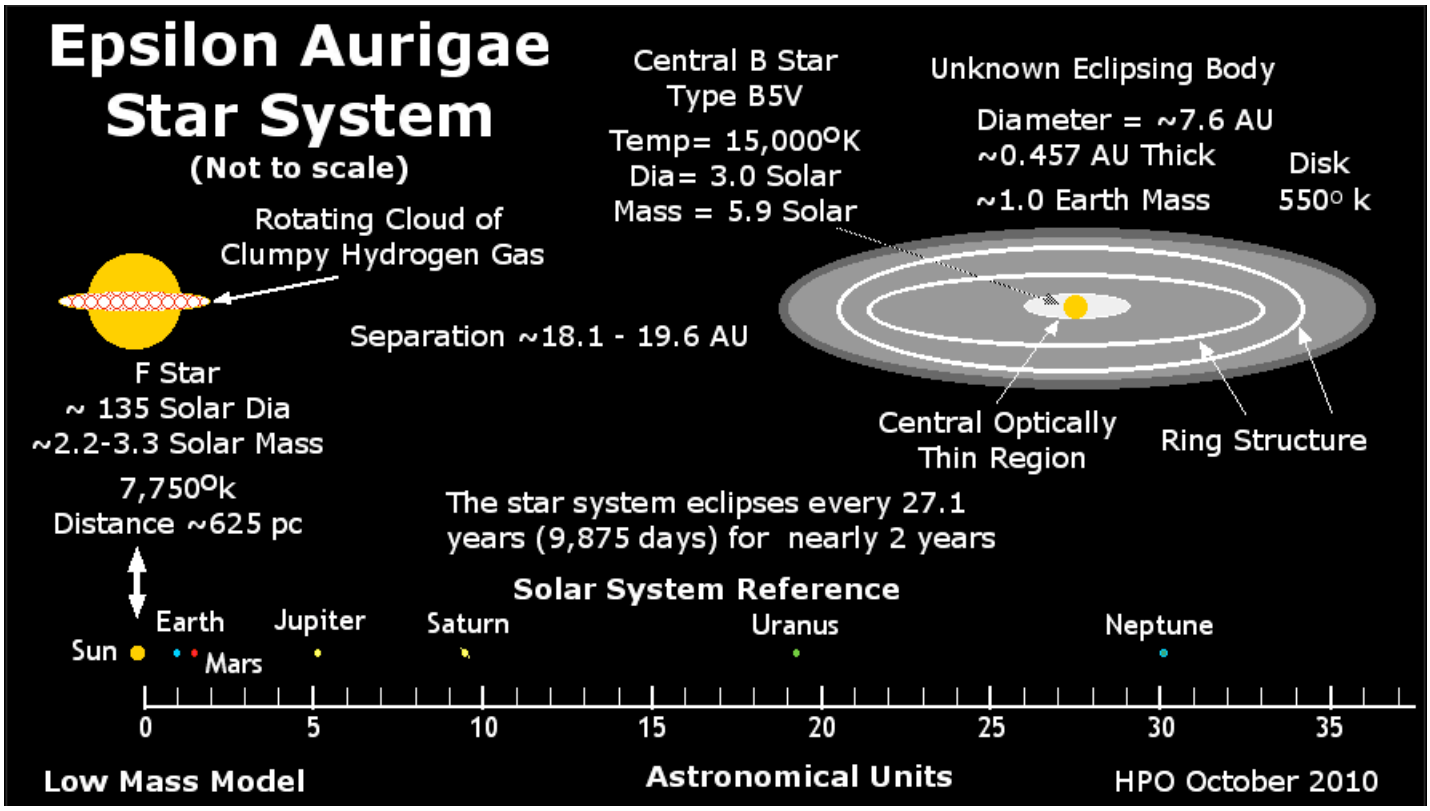
2009/2011
Epsilon Aurigae Eclipse
International Campaign Newsletter #23
Summer 2011 - Fourth Contact



Jeffrey L. Hopkins, Editor
Hopkins Phoenix Observatory

Dr. Robert E. Stencel, Co-editor
University of Denver

Robin Leadbeater, Co-editor
Three Hills Observatory

Campaign Web Site
http://www.hposoft.com/Campaign09.html
and
Epsilon Aurigae Forum
http://tech.groups.yahoo.com/EpsilonAurigae/
see also
https://twitter.com/epsilon_Aurigae

In This Newsletter

Editor's Remarks

Dear Colleagues,

The 2009 Eclipse of epsilon Aurigae is over. We had great coverage of this eclipse with photometry and spectroscopy. The Campaign has been a great success. I wish to thank all the observers and contributors. Please consider continued observations as the star system is very interesting even out-of-eclipse.

I have finished the summary of the photometric timing data for the recent eclipse. The data are list in this Newsletter. A more complete discussion of the analysis will be published on the web site. I also plan to go back over the 1982 eclipse data and recalculated the timing using the method I used for the recent eclipse and include the OOE data. In this Newsletter I have added the JH band photometric plots. A complete archive of the data is available on line.

For this eclipse we have over 3,500 UBVRI data observation submitted including nearly 1,900 visual observations. Again, I urge those who have an interest to continue to observe out-of-eclipse. A better understanding of the OOE data is needed to fill in some points so a better understanding of the eclipse data can be obtained. Your work will continue to be important.

Robin Leadbeater notes, "the eclipse will continue spectroscopically for some months yet until the tenuous outer regions have cleared the F star. (The 7699A line is in fact as strong currently as it was at any stage during the first half of the eclipse). I am trying to remotivate observers to start observing again now that epsilon Aurigae is higher in the sky again, but it could be difficult given the unsociable hours best for observation currently. This is a critical time as we have an opportunity to put some detail on this outer region which has not been extensively investigated previously and it will be a real shame of we manage to cover 90% of the eclipse but miss this last part."

As you will see there is notice of a meeting in Europe next July, Hvar, Crotia. According to Dr. Bob, who is one of the co-organizers) there will be at least one session on epsilon Aurigae.

Zeta Aurigae Eclipse
The will be an eclipse of zeta Aurigae this fall JD 2,455,885, 19 November 2011. Zeta is an eclipsing binary system with similarities to epsilon Aurigae. You are encouraged to start observation in early November, if not sooner. The eclipse lasts about 40 days and is deepest in the shorter wave lengths. The Epoch is 2,438,386.525 and the period is 972.164 days or 2.7 years. More information is available on the Campaign web site or contact me directly.

AAVSO Web Blocking
For several weeks I could not log onto any portion of the AAVSO web site, nor get any of the messages from the various lists. It turns out they were blocking my IP addresses. I have since gotten this resolved, but if anyone is having trouble accessing the AAVSO web site, let me know and I may be able to help.

A big **Thank You** to all that have helped and contributed to the Campaign.

Jeff

IMPORTANT NOTICES

Data Copyright

Data in this and other Newsletters and on the Campaign web site are provided for viewing and downloading. Use of any data in any papers requires approval from the observer(s). Please contact me at phxjeff@hposoft.com or the specific observer(s) for more information and permission.

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Standard Deviation versus Standard Error

There has been some discussion about whether to use standard deviation or standard error when reporting photometric observational data.

It is preferred that photometric observations include a standard deviation of at least three data points for each observed band for the session. The purpose is not to report an error, which is actually not what is important, but to give an idea of the quality of the observation and an idea of the data spread. That is all it does and all that it needs to do.

Standard error is the standard deviation divided by the square root of the number of samples. By have a large number of samples the standard can be much less than the standard deviation, yet the data spread can be the same. These means that while the standard error may look very good and much better than someone else's standard deviation, it is very misleading.

Please submit photometric data as an average of at least three data points with a standard deviation of the data. Thank you!

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Yahoo Epsilon Aurigae Chat List Forum

As mentioned in the last Newsletter, we have started a chat list forum to enhance our communications. Lots of interesting things are happening and many time dependent. The Epsilon Aurigae Chat list will allow near instantaneous communication with everyone who is interested in the project. It's free and to sign up just go to

http://tech.groups.yahoo.com/EpsilonAurigae/

and sign up.

Photometry Report

by
Jeffrey Hopkins
Hopkins Phoenix Observatory

Summary of Observations by Observer

Obser	V Band	B Band	U Band	Rc Band	Rj Band	Ic Band	Ij Band	Total	Equip
CH -	78							78	DSLR
CO -	3							3	CCD
CQJ -	100	100				95		295	CCD
DES -	209							209	DSLR
EAO -	68							68	CCD
EGO -	81							81	DSLR
EUO -	1	39	9		40			89	PMT
FJM -	64							64	SSP-3
GHO -	164					159		322	CCD
GO -	19			19				38	CCD
GS -	171	170		175		173		689	CCD
GVO -	13	8			13		13	47	SSP-3
HPO -	147	209	209					565	PMT
JBO -	16	41			16		16	89	SSP-3
JESO-	34							34	
KO -	111							111	CCD
LO -	87							87	SSP-3
MSO -	3	3						6	CCD
NKO -	38							38	DSLR
NPO -					18		18	36	SSP-3
RES -	53							53	DSLR
RLO -	29							29	DSLR
SGGO-	64	17		59				140	CCD
TP -	86							86	DSLR
VO -	173							173	DSLR
WWC-	50	42						92	DSLR
Total	1863	629	218	253	87	427	47	3524	XX

The above is a summary of data taken from the data plots. While the data is mainly from just the beginning of the eclipse, the UB data contain data from before the eclipse so the actual number of observations total is greater, but during the eclipse the UB data contains data from before. As of 26 July 2011 we have over 3,500 total observations during the eclipse with the visual band having by far the most at nearly 1,900 observations.

Plot Observer Key

CH - Colin Henshaw, Tabuk, Saudi Arabia
CO - Steve Orlando,Custer Observatory, East Northport, NY, USA
CQJ - John Centala , Eastern Iowa, USA
DES - Des Loughney, Edinburgh, Scotland, UK
EAO - Elizabeth Observatory of Athens, Iakovos Marios Strikis**,** Haldrf (Athens) Greece
EGO - East Greenwood Observatory, Charles Hofferber, East Grand Forks, Minnesota, USA
EUO - Ege University Observatory, Serdar Evren, Izmir, Turkey
FJM - Frank J. Melillo, Holtsville, New York, USA
GHO - Golden Hill Observatory, Richard Miles, Dorset, England
GO - Laurent Corp, Garden Observatory, Rodez, France
GS - Gerard Samolyk, Greenfield, Wisconsin, USA
GVO - Grand View Observatory, Brian E. McCandless, Elkton, MD. USA
HPO - Hopkins Phoenix Observatory, Jeff Hopkins, Phoenix, Arizona. USA
JBO - Jim Beckmann Observatory, Paul J. Beckmann, Mendota Heights, MN. USA
JESO - Jalna Education Society Observatory, Dr. Mukund Kurtadikar, Maharashtra, India
KO - Hans-Goran Lindberg, Kaerrbo Observatory**,** Skultuna, Sweden
LO - Lindarberg Observatory, Snaevarr Gudmundsson, Hafnarfjordur, Iceland
MSO - Arvind Paranjpye, MVS IUCAA Observatory, Ganeshkhind Pune, India
NKO - Nils Karlsen, Nils Karlsen Observatory, Umea, Sweden
NPO - Gary Frey, North Pines Observatory, Mayer, Arizona. USA
RES - Dr. Robert E. Stencel, University of Denver, Denver, Colorado. USA
RLO - Hubert Hautecler, Roosbeek Lake Observatory, Boutersem Brabant, Belgium
SGGO - Tiziano Colombo, S. Giovanni Gatano al Observatory, Pisa, Italy
TP - Tom Pearson, Virginia Beach, Virginia, USA
VO - Thomas Karlsson, Varberg Observatory, Varberg, Sweden
WWC- Donald Collins, Warren Wilson College, Ashville, North Carolina, USA

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IMPORTANT NOTICE

Please review the photometric plots and look for your data. See how close they are to the rest of the reported magnitudes at about the same time. Most data are excellent, but some are obvious flyers. If your data are varying significantly from others, you may want to reexamine your reduction and/or procedures.

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Photometric Archive

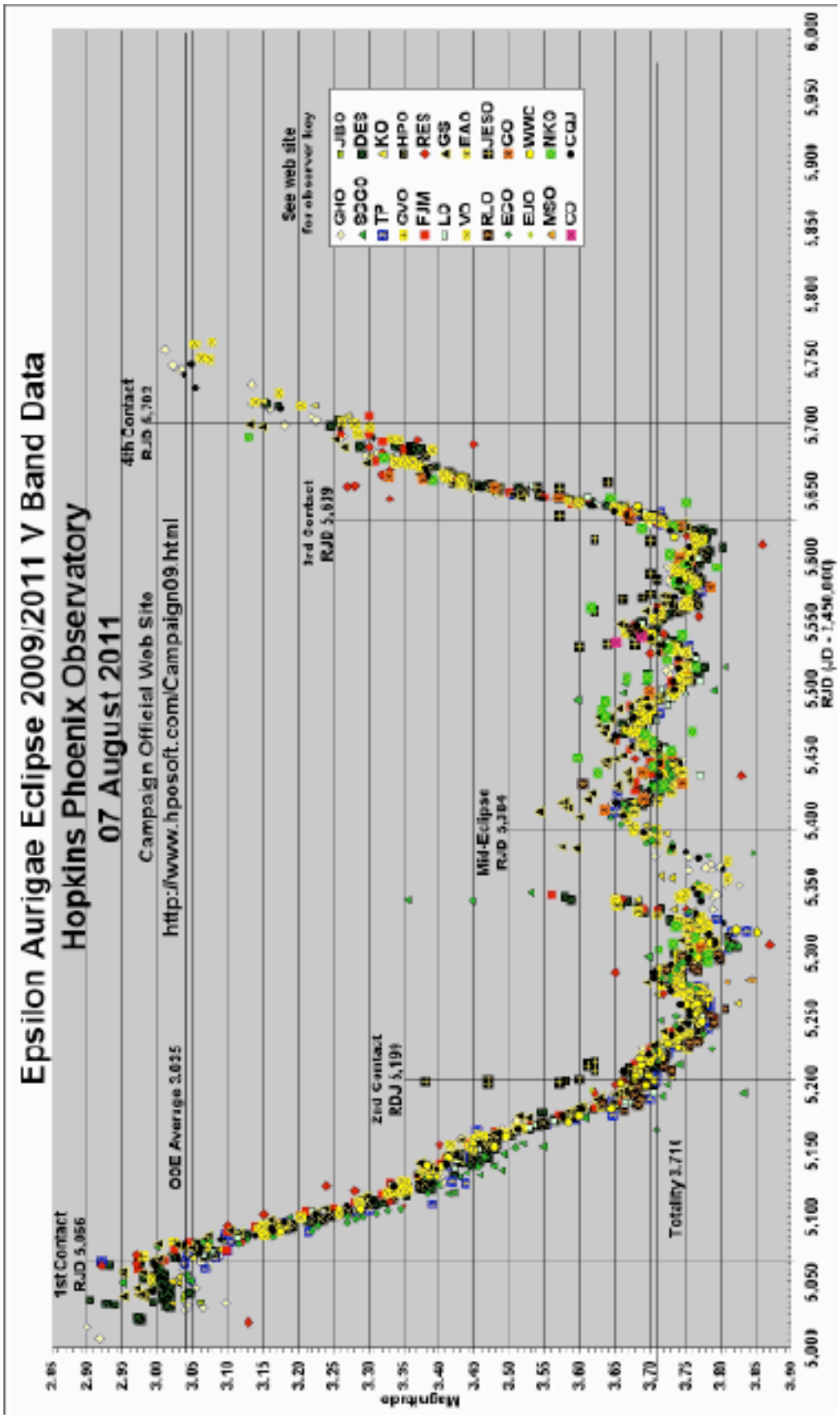
UBVRcRjIcIjJH Band data is now archived and can be downloaded at
http://www.hposoft.com/EAur09/Data/UBVRIJHData.html

Photometric Plots

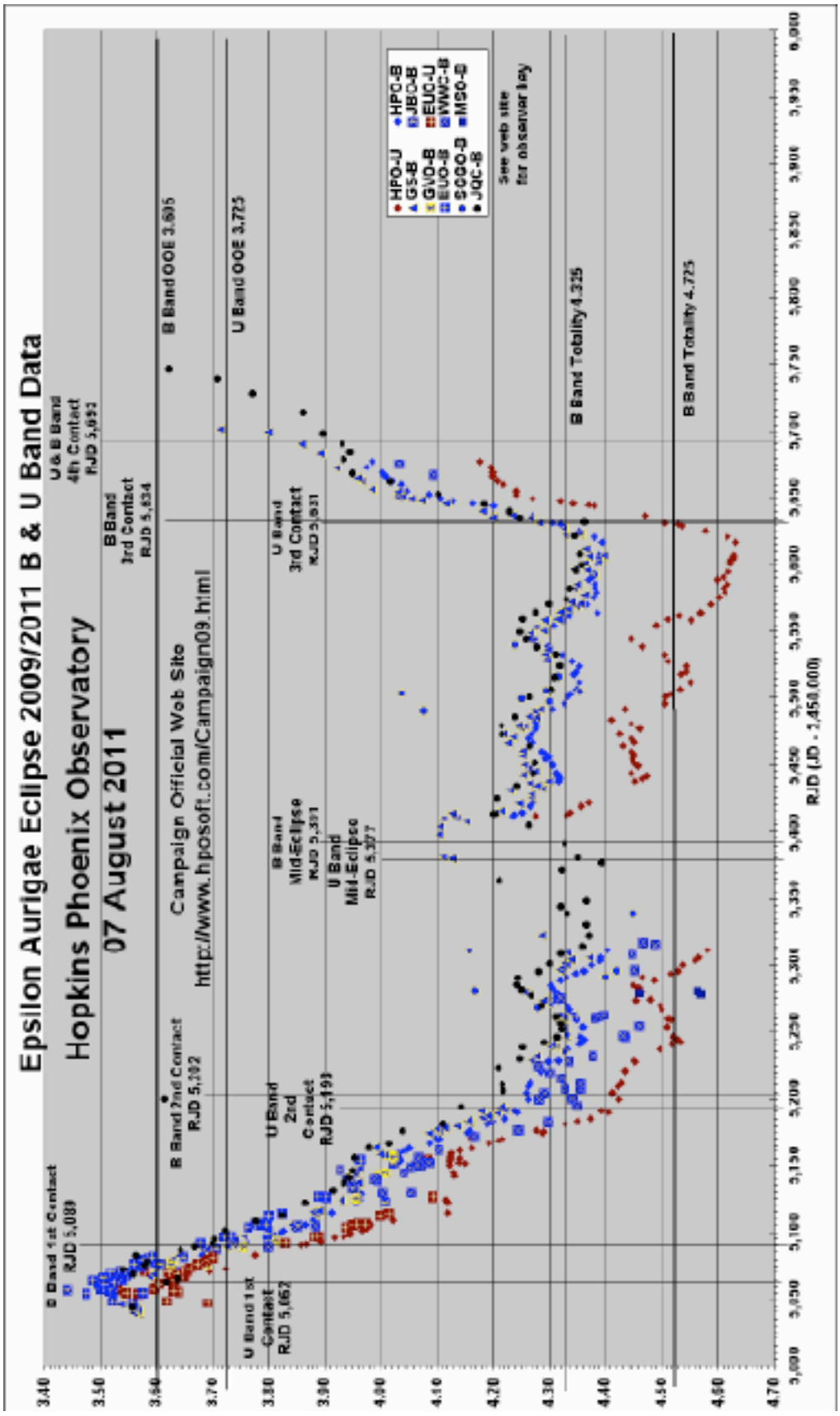
Note: Full resolution images of the photometric data plots can be seen at:

V Band Plot:
http://www.hposoft.com/Plots09/VFall09.jpg
UB Band Plots:
http://www.hposoft.com/Plots09/UBFall09.jpg
RI Band Plots:
http://www.hposoft.com/Plots09/RIFall09.jpg
JH Band Plots:
http://www.hposoft.com/Plots09/JHFall09.jpg

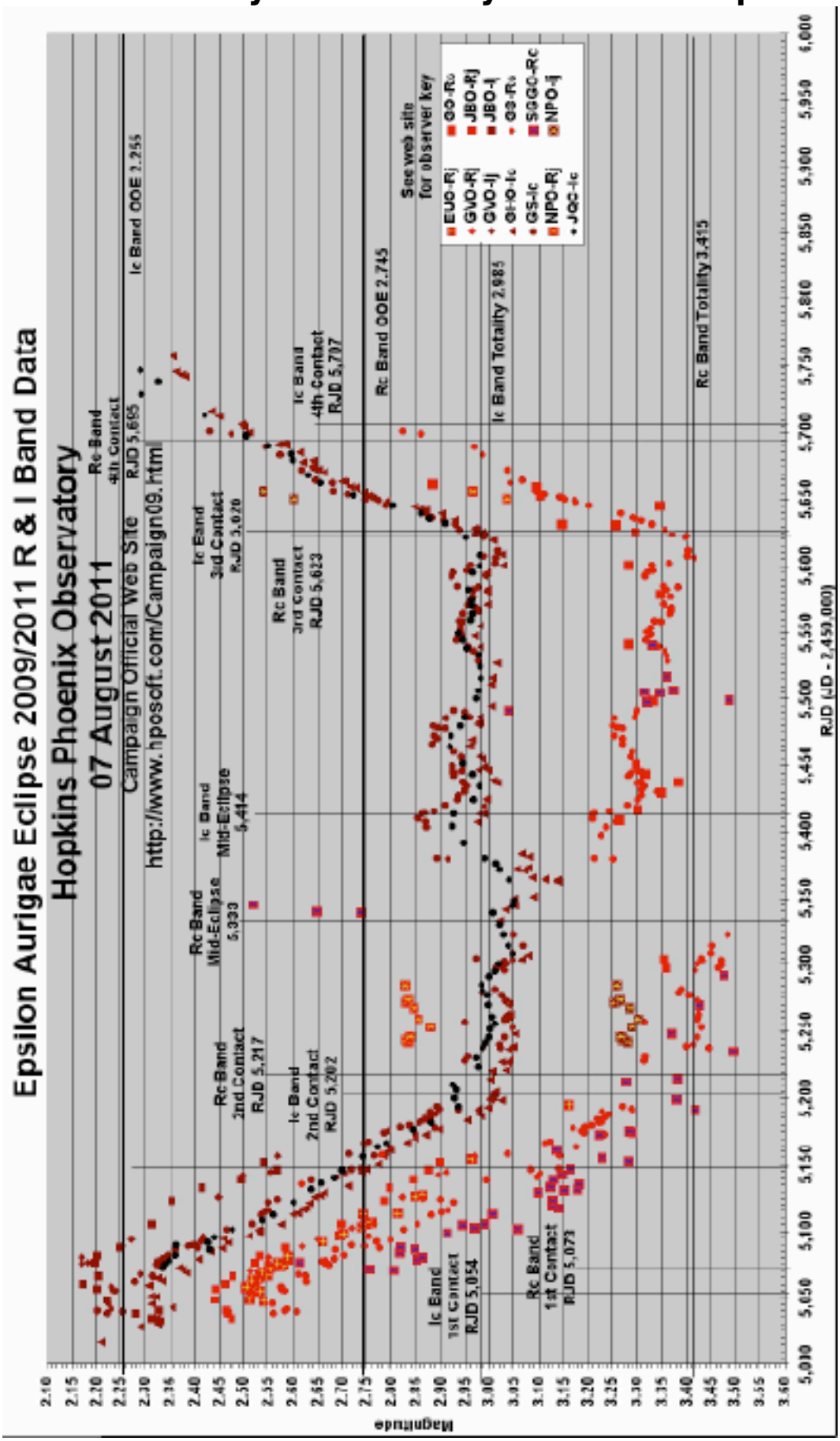
Ingress and Totality Photometry V Data Composite Plot



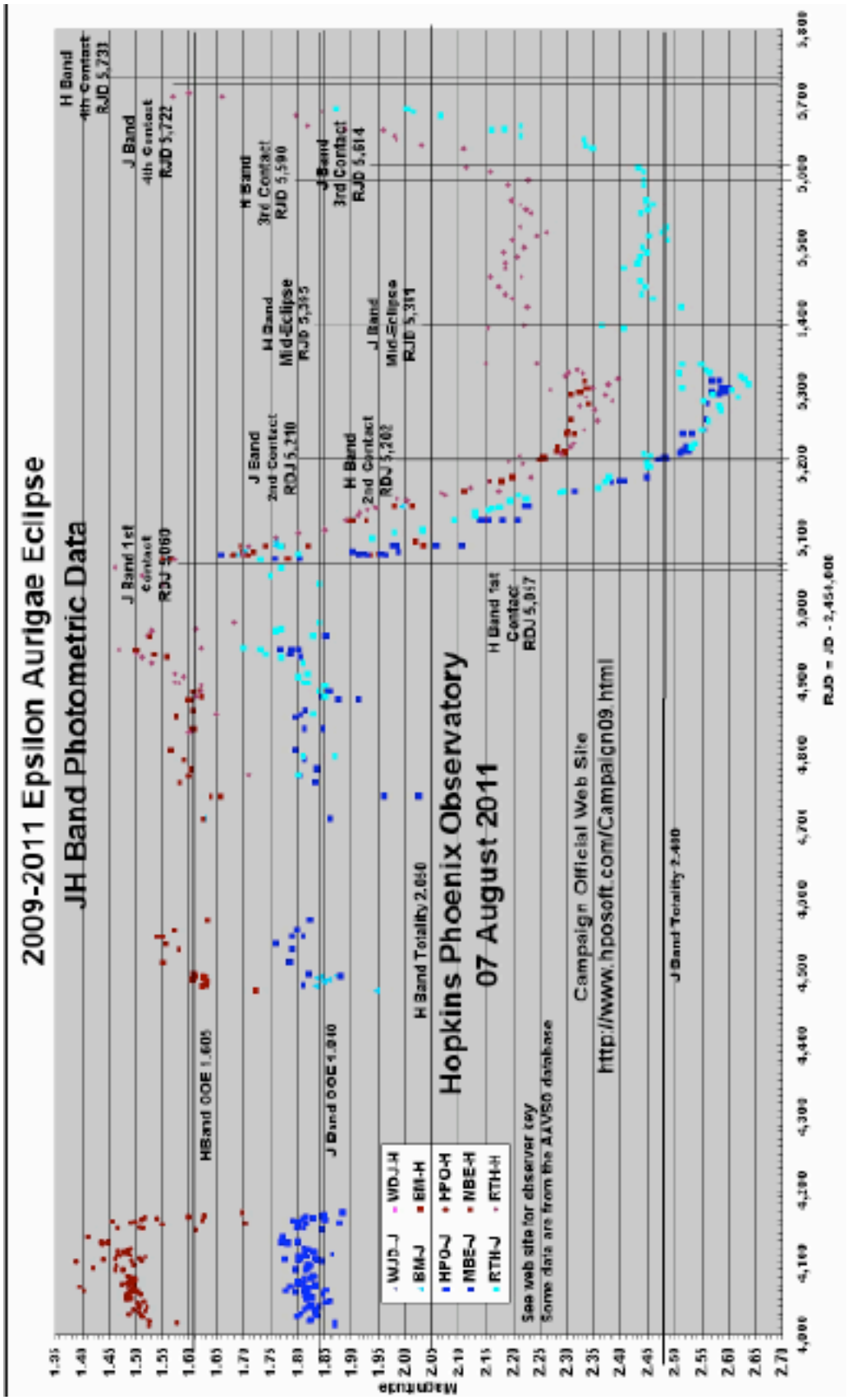
Ingress and Totality Photometry UB Data Composite Plot



Ingress and Totality Photometry RI Data Composite Plot



Ingress and Totality Photometry JH Data Composite Plot



2009 - 2011 Photometric Data Eclipse Summary

A detailed Summary with screen shots and methodology can be found at:

http://www.hposoft.com/EAur09/Analysis2011.html

Note: Only the UBV bands have predicted data.

	RJD= JD-2,400,000 Observed		RJD= JD-2,400,000 Predicted
U Band			
OOE Magntiude	3.725 Mag		3.73 Mag (1982/84)
	Δ 0.230 Mag		
1st Contact	RJD= 55,062	± 21 days	RJD= 55,065
2nd Contact	RJD= 55,193	± 21 days	RJD= 55,237
Ingress	131 days	± 26.5 days	120 days (1982/84)
Mid-Eclipse	RJD= 55,377	±14 days	
Totality			
Average Magnitude	4.525 Mag		4.57 Mag (1982/84)
Average Depth	0.800 Mag		
Duration	438 days	±10 days	455 days (1982/84)
3rd Contact	RJD= 55,631	±09 days	
4th Contact	RJD= 55,693	±09 days	
Egress	62 days	±37.5 days	55 days (1982/84)
Eclipse			
Duration	631 days	±14 days	630 days (1982/84)
Average Depth	0.800 Mag	0.84 Mag	
Period	9,882 days	± 21 days	9,885 days
B Band			
OOE Magntiude	3.605 Mag		3.61 Mag (1982/84)
	Δ 0.150 Mag		
1st Contact	RJD= 55,089	± 12 days	RJD= 55,054
2nd Contact	RJD= 55,202	± 12 days	RJD= 55,214
Ingress	113 days	± 12 days	135 days (1982/84)
Mid-Eclipse	RJD= 55,391	±19.5 days	
Totality			
Average Mag	4.325		4.32 Mag (1982/84)
Average Depth	0.720 Mag		
Duration	432 days	±09.5 days	437 days (1982/84)
3rd Contact	RJD= 55,634	±07 days	
4th Contact	RJD= 55,693	±07 days	
Egress	59 days	±07 days	71 days (1982/84)
Eclipse			
Duration	604 days	±19.5 day s	643 days (1982/84)
Average Depth	0.720 Mag	0.71 Mag	
Period	9,919 days	± 12 days	9,884 days

	RJD= JD-2,400,000 Observed		RJD= JD-2,400,000 Predicted
V Band			
OOE Magntiude	3.035 Mag		3.03 Mag (1982/84)
	Δ 0.130 Mag		
1st Contact	RJD= 55,066	± 12 days	RJD= 55,056
2nd Contact	RJD= 55,199	± 12 days	RJD= 55,213
Ingress	133 days	± 12 days	142 days (1982/84)
Mid-Eclipse	RJD= 55,384.5	±09.5 days	
Totality			
Average Mag	3.710 Mag		3.73 Mag (1982/84)
Average Depth	0.675 Mag		0.70 Mag (1982/84)
Duration	430 days	±09.5 days	447 days (1982/84)
3rd Contact	RJD= 55,629	±07 days	
4th Contact	RJD= 55,703	±07 days	
Egress	74 days	±07 days	65 days (1982/84)
Eclipse			
Duration	637 days	±09.5 days	654 days (1982/84)
Average Depth	0.675 Mag		0.70 Mag
Period	9,898 days	± 12 days	9,908 days
Rc Band			
OOE Magntiude	2.745 Mag		
	Δ 0.630 Mag		
1st Contact	RJD= 55,073	± 67 days	
2nd Contact	RJD= 55,217	± 67days	
Ingress	144 days	± 67days	
Mid-Eclipse	RJD= 55,333	± 45.5 days	
Totality			
Average Mag	3.415 Mag		
Average Depth	0.670 Mag		
Duration	406 days	±17.5 days	
3rd Contact	RJD= 55,623	± 34 days	
4th Contact	RJD= 55,695	± 34 days	
Egress	72 days	±34 days	
Eclipse			
Duration	622 days	±45.5 days	
Average Depth	0.670 Mag		
Period ?			

	RJD= JD-2,400,000 Observed		RJD= JD-2,400,000 Predicted
Ic Band			
OOE Magntiude	2.255Mag		
	Δ 0.410 Mag		
1st Contact	RJD= 55,054	± 42 days	
2nd Contact	RJD= 55,202	± 42days	
Ingress	148days	± 42 days	
Mid-Eclipse	RJD= 55,414	± 32.5 days	
Totality			
Average Mag	2.985 Mag		
Average Depth	0.720 Mag		
Duration	424 days	±32.5 days	
3rd Contact	RJD= 55,626	± 23 days	
4th Contact	RJD= 55,707	± 23 days	
Egress	81 days	±23 days	
Eclipse			
Duration	6253 days	±37.5 days	
Average Depth	0.730 Mag		
Period ?			
J Band			
OOE Magntiude	1.840 Mag		
	Δ 0.160 Mag		
1st Contact	RJD= 55,060	± 30 days	
2nd Contact	RJD= 55,210	± 30days	
Ingress	150 days	± 30 days	
Mid-Eclipse	RJD= 55,391	± 18 days	
Totality			
Average Mag	2.480 Mag		
Average Depth	0.640 Mag		
Duration	404 days	±18 days	
3rd Contact	RJD= 55,614	± 14 days	
4th Contact	RJD= 55,722	± 14 days	
Egress	108 days	±14 daya	
Eclipse			
Duration	662 days	±18 days	
Average Depth	0.640 Mag		
Period ?			

H Band	RJD= JD-2,400,000 Observed		RJD= JD-2,400,000 Predicted
OOE Magntiude	1.605Mag		
	Δ 0.645 Mag		
1st Contact	RJD= 55,057	± 15 days	
2nd Contact	RJD= 55,202	± 15days	
Ingress	145 days	± 15 days	
Mid-Eclipse	RJD= 55,395	± 15.5 days	
Totality			
Average Mag	2.050 Mag		
Average Depth	0.645 Mag		
Duration	388 days	±15.5 days	
3rd Contact	RJD= 55,590	± 14 days	
4th Contact	RJD= 55,733	± 14 days	
Egress	143 days	±14 days	
Eclipse			
Duration	676 days	±09.5 days	
Average Depth	0.645 Mag		
Period ?			

Photometric Observers

John Centala (CQJ)
Eastern Iowa, Latitude 43 degrees N
CCD ST-402
Comp Stars are Zeta (Ic = 2.214) and Eta Aurigae (Ic= 3.296)

Double Date	RJD	B mag	#	SD	V Mag	#	SD	Ic Mag	#	SD	X Avg
16/17 May 09	4968.6215	3.558	6	0.041	2.902	3	0.031				3.785
30/31 Jul 09	5043.8694	3.618	9	0.020	2.995	9	0.029				1.95
18/19 Aug 09	5062.7979	3.638	9	0.071	3.000	9	0.047				2.235
21/22 Aug 09	5065.7590	3.560	3	0.017	2.993	3	0.050				3.175
24/25 Aug 09	5068.7764	3.543	10	0.027	3.029	10	0.017				2.368
28/29 Aug 09	5072.7736	3.579	10	0.038	3.060	20	0.032	2.335	10	0.025	2.231
31Aug/1Sep09	5075.7681	3.584	10	0.023	3.062	10	0.043	2.339	10	0.054	2.190
03/04Sep 09	5078.7681	3.564	20	0.039	3.039	20	0.056	2.350	10	0.048	2.086
07/08Sep 09	5082.7507	3.644	10	0.026	3.091	30	0.025	2.362	10	0.035	2.174
11/12 Sep 09	5086.7597	3.669	10	0.026	3.140	30	0.027	2.432	10	0.038	1.902
14/15 Sep 09	5089.7465	3.702	10	0.026	3.164	20	0.017	2.365	10	0.031	1.957
16/17 Sep 09	5091.7931	3.705	10	0.012	3.161	10	0.010	2.429	10	0.012	1.468
20/21 Sep 09	5095.7111	3.725	10	0.017	3.181	10	0.011	2.442	10	0.015	2.231
26/27 Sep 09	5101.7222	3.778	10	0.017	3.226	10	0.011	2.478	10	0.019	1.856
03/04 Oct 09	5108.7694	3.826	10	0.006	3.271	10	0.005	2.539	10	0.010	1.337
07/08 Oct 09	5112.6979	3.865	10	0.015	3.305	10	0.014	2.562	10	0.017	1.812
17/18 Oct 09	5122.7208	3.915	10	0.010	3.336	10	0.011	2.602	10	0.011	1.368
26/27 Oct 09	5131.6757	3.935	10	0.010	3.369	10	0.014	2.638	10	0.024	1.527
31Oct/1Nov09	5136.7486	3.944	10	0.005	3.397	10	0.004	2.658	10	0.005	1.126
04/05 Nov 09	5140.7007	3.951	10	0.006	3.411	10	0.004	2.686	10	0.006	1.252
10/11 Nov 09	5146.6694	3.954	10	0.006	3.425	10	0.009	2.700	10	0.008	1.316
20/21 Nov 09	5156.6896	3.978	10	0.015	3.459	10	0.004	2.744	10	0.011	1.139
27/28 Nov 09	5163.6583	4.015	10	0.011	3.487	10	0.007	2.773	10	0.009	1.176
30Nov/1Dec09	5166.6597	4.038	10	0.006	3.513	10	0.006	2.791	10	0.004	1.146
10/11 Dec 09	5176.6326	4.112	10	0.006	3.575	10	0.008	2.845	10	0.010	1.145
15/16 Dec 09	5181.6278	4.143	10	0.008	3.603	10	0.007	2.883	10	0.009	1.112
28/29 Dec 09	5194.5507	4.211	10	0.008	3.667	10	0.006	2.938	10	0.011	1.260
3/04 Jan10	5200.5396	4.218	10	0.006	3.674	10	0.006	2.931	10	0.006	1.240
09/10 Jan10	5206.5514	4.217	10	0.008	3.672	10	0.008	2.935	10	0.006	1.143
13/14 Jan10	5210.6597	4.209	10	0.009	3.663	10	0.005	2.927	10	0.007	1.001
26/27 Jan10	5223.5604	4.247	10	0.107	3.698	10	0.032	2.975	10	0.038	1.034
02/03 Feb10	5230.6889	4.253	10	0.004	3.707	10	0.005	2.972	10	0.007	1.098
10/11 Feb10	5238.5528	4.293	10	0.004	3.732	10	0.002	2.987	10	0.004	1.006
14/15 Feb10	5242.5424	4.314	10	0.006	3.743	10	0.008	2.993	10	0.007	1.006
18/19 Feb10	5246.5438	4.321	10	0.006	3.754	10	0.003	3.001	10	0.005	1.001
24/25 Feb10	5252.5528	4.320	10	0.005	3.757	10	0.003	3.002	10	0.007	1.003
28Feb/1Mar10	5256.5556	4.312	10	0.009	3.757	10	0.006	3.011	10	0.007	1.010
5/6 Mar10	5261.5590	4.287	10	0.004	3.743	10	0.004	3.007	10	0.006	1.024
14/15 Mar10	5270.5681	4.269	10	0.014	3.730	10	0.013	3.000	10	0.009	1.073
21/22 Mar10	5277.5715	4.251	10	0.009	3.717	10	0.009	2.997	10	0.016	1.123
25/26 Mar10	5281.5750	4.243	10	0.008	3.706	10	0.004	2.986	10	0.010	1.164
29/30 Mar10	5285.5799	4.245	10	0.007	3.704	10	0.007	2.985	10	0.016	1.219
4/5 Apr10	5291.5944	4.283	10	0.010	3.731	10	0.010	3.001	10	0.011	1.357
8/9 Apr10	5295.5889	4.301	10	0.011	3.755	10	0.006	3.012	10	0.013	1.386
14/15 Apr10	5301.5965	4.320	10	0.017	3.759	10	0.006	3.019	10	0.012	1.544
21/22 Apr10	5308.5931	4.360	10	0.010	3.793	10	0.009	3.047	10	0.018	1.679
27/28 Apr10	5314.6181	4.370	10	0.015	3.784	10	0.016	3.039	10	0.009	2.146
5/6 May10	5322.6111	4.366	10	0.024	3.805	10	0.017	3.028	10	0.020	2.448
13/14 May10	5330.6104	4.332	10	0.018	3.766	10	0.020	3.020	10	0.022	2.971
22/23 May10	5339.6215	4.320	10	0.048	3.774	10	0.040	3.009	10	0.036	4.525
27/28 May10	5344.6208	4.366	30	0.029	3.769	30	0.039	3.047	30	0.055	5.362
31May/1Jun10	5348.6174	4.349	30	0.047	3.761	29	0.025	3.051	20	0.046	6.007
23/24 Jun 10	5371.8701	4.396	30	0.0247	3.770	30	0.0224	3.020	30	0.0278	5.526

28/29 Jun 10	5376.8604	4.353	30	0.0258	3.750	30	0.0263	3.014	30	0.0362	5.186
02/03 Jul 10	5380.8660	4.327	30	0.0283	3.733	30	0.0278	2.992	30	0.0626	4.156
13/14 Jul 10	5391.8674	4.263	20	0.0148	3.691	20	0.0218	2.949	20	0.0197	2.934
26/27 Jul 10	5404.8667	4.202	20	0.0156	3.661	20	0.0156	2.925	20	0.0206	2.177
04/05 Aug 10	5413.8688	4.206	20	0.0170	3.651	20	0.0125	2.929	20	0.0197	1.827
15/16 Aug 10	5424.8806	4.243	10	0.0073	3.698	10	0.0074	2.967	10	0.0123	1.471
25/26 Aug 20	5434.9028	4.273	10	0.0075	3.716	10	0.0052	2.979	10	0.0037	1.222
03/04 Sep 10	5443.9042	4.275	10	0.0052	3.714	10	0.0028	2.966	10	0.0068	1.137
11/12 Sep 10	5451.9111	4.264	10	0.0071	3.695	10	0.0082	2.947	10	0.0072	1.071
24/25 Sep 10	5464.8896	4.216	10	0.0065	3.652	10	0.0066	2.920	10	0.0042	1.047
02/03 Oct 10	5472.9222	4.215	10	0.0049	3.667	10	0.0048	2.922	10	0.0075	1.002
09/10 Oct 10	5479.8097	4.240	10	0.0066	3.679	10	0.0045	2.942	10	0.0057	1.127
16/17 Oct 10	5486.7778	4.264	10	0.0052	3.698	10	0.0051	2.951	10	0.0061	1.163
30/31 Oct 10	5500.7083	4.305	10	0.0084	3.736	10	0.0055	2.973	10	0.0096	1.279
05/06 Nov 10	5506.7382	4.309	10	0.0106	3.734	10	0.0037	2.975	10	0.0066	1.120
14/15 Nov 10	5515.7354	4.318	10	0.0094	3.741	10	0.0055	2.983	10	0.0048	1.073
23/24 Nov 10	5524.6493	4.312	10	0.0072	3.740	10	0.0055	2.981	10	0.0057	1.250
02/03 Dec 10	5533.7014	4.280	10	0.0046	3.719	10	0.0065	2.977	10	0.0078	1.047
07/08 Dec 10	5538.6694	4.258	10	0.0057	3.701	10	0.0043	2.954	10	0.0089	1.078
13/14 Dec 10	5544.6278	4.247	10	0.0058	3.687	10	0.0044	2.948	10	0.0097	1.138
18/19 Dec 10	5549.5694	4.252	10	0.0057	3.682	10	0.0050	2.938	10	0.0095	1.303
28/29 Dec 10	5559.7819	4.277	10	0.0078	3.708	10	0.0055	2.961	10	0.0049	1.084
02/03 Jan 11	5564.5521	4.300	10	0.0067	3.732	10	0.0086	2.966	10	0.0072	1.205
08/09 Jan 11	5570.5403	4.330	10	0.0051	3.735	10	0.0091	2.964	10	0.0090	1.190
12/13 Jan 11	5574.5417	4.339	10	0.0044	3.747	10	0.0039	2.963	10	0.0045	1.150
20/21 Jan 11	5582.5451	4.349	10	0.0041	3.742	10	0.0039	2.958	10	0.0048	1.087
02/03 Feb 11	5595.5368	4.359	10	0.0148	3.753	10	0.0064	2.965	10	0.0087	1.041
07/08 Feb 11	5600.5403	4.355	10	0.0025	3.760	10	0.0037	2.980	10	0.0045	1.021
15/16 Feb 11	5608.6451	4.346	10	0.0055	3.755	10	0.0068	2.979	10	0.0091	1.079
28Feb/1Mar11	5621.6069	4.363	8	0.0220	3.729	10	0.0118	2.953	10	0.0079	1.073
11/12 Mar 11	5632.6028	4.248	10	0.0106	3.667	10	0.0191	2.910	10	0.0156	1.132
14/15 Mar 11	5635.5681	4.231	10	0.0132	3.649	10	0.0079	2.879	10	0.0118	1.072
18/19 Mar 11	5639.5799	4.184	10	0.0039	3.618	10	0.0033	2.863	10	0.0052	1.123
24/25 Mar 11	5645.5632	4.103	10	0.0088	3.548	10	0.0091	2.805	10	0.0131	1.121
01/02 Apr 11	5653.5826	4.017	10	0.0078	3.458	10	0.0034	2.723	10	0.0048	1.258
10/11 Apr 11	5662.5882	3.951	10	0.0068	3.384	10	0.0114	2.656	10	0.0096	1.412
16/17 Apr 11	5668.5938	3.935	10	0.0104	3.380	10	0.0079	2.633	10	0.0137	1.561
27/28 Apr 11	5679.6201	3.946	10	0.0175	3.360	10	0.0235	2.600	10	0.0241	2.197
02/03 May 11	5684.6063	3.932	10	0.0162	3.358	10	0.0178	2.596	10	0.0239	2.195
08/09 May 11	5690.6132	3.899	20	0.0222	3.307	20	0.0272	2.551	20	0.0322	2.652
16/17 May 11	5698.6160	3.862	30	0.0220	3.260	30	0.0217	2.506	30	0.0296	3.358
31May/1Jun11	5713.6229	3.774	30	0.0340	3.177	30	0.0315	2.422	30	0.0445	6.747
15/16 Jun 11	5728.8951	3.711	30	0.0391	3.054	30	0.0302	2.292	30	0.0361	5.228
25/26 Jun 11	5738.8792	3.623	30	0.0229	3.039	30	0.0322	2.326	30	0.0483	4.519
04/05 Jul 11	5747.8750	3.616	30	0.0264	3.049	30	0.0229	2.290	30	0.0365	3.546

RJD = JD - 2,450,000

Des Loughney (DES)
Edinburgh, Scotland, UK
Canon DSLR . 200 ISO . f4 . 85 mm lens. Exposure 5 seconds
Eta Aurigae used as the comparison star at V = 3.18
Des uses a remote switch to activate the Canon 200 Digital Single Lens Reflex (DSLR) camera with 85 mm lens. He takes between 10 and 20 exposures stacks and processes 5 sets of them with AIP4WIN.

UT Date	RJD	V Mag	SD
30 Apr/01 May 2011	5682.301	3.373	0.030
01/02 May 2011	5683.377	3.361	0.014
02/03 May 2011	5684.381	3.342	0.011
03/04 May 2011	5685.377	3.339	0.022
12/13 May 2011	5694.400	3.288	0.024
18/19 May 2011	5700.398	3.246	0.014
22/23 May 2011	5704.404	3.257	0.019
02/03 June 2011	5715.433	3.172	0.050
03/04 June 2011	5716.431	3.154	0.024

RJD = JD - 2,450,000

Gerard Samolyk (GS)
Greenfield, Wisconsin . USA
Equipment, CCD Camera and Camera Lens , ST9XE + 50 mm lens
Comparison star lambda Aurigae; B= 5.329; V= 4.705; Rc= 4.340; Ic= 3.998

RJD	V	SD	B	SD	Rc	SD	Ic	SD
5652.5832	4.029	0.023	3.444	0.025	3.144	0.008	2.764	0.010
5654.5857	4.030	0.020	3.445	0.011	3.114	0.009	2.711	0.010
5656.6446	3.985	0.043	3.418	0.044	3.094	0.015	2.684	0.028
5662.55759	3.965	0.047	3.372	0.012	3.043	0.026	2.682	0.018
5664.5807	3.958	0.020	3.381	0.025	3.067	0.007	2.647	0.006
5672.5839	3.919	0.027	3.296	0.017	3.037	0.011	2.619	0.010
5683.6083	3.893	0.018	3.266	0.038	2.986	0.021	2.575	0.009
5689.6025	3.858	0.031	3.252	0.031	2.968	0.028	2.544	0.010
5699.6131	3.799	0.055	3.148	0.052	2.863	0.056	2.476	0.044
5701.6140	3.715	0.021	3.132	0.039	2.824	0.059	2.433	0.035

RJD = JD - 2,450,000

Frank J. Melillo (FJM)
Holtsville , NY USA
Lat:+ 40d 40' Long: 73 W Elevation: 100'
Instrument: Optec SSP-3, Telescope: C-8 8"
Gate Time: 10 Seconds

RJD	Date	V Mag	SD
30 Apr/01 May 2011	5682.5889	3.35	0.038
05/06 May 2011	5687.5731	3.32	0.036
10/11 May 2011	5692.5720	3.30	0.013
11/12 May 2011	5693.5665	3.26	0.025
25/26 May 2011	5707.5555	3.30	0.056

RJD = JD - 2,450,000

Richard Miles, Golden Hill Observatory (GHO)
Stourton Caundle, Dorset, England, Time Zone: GMT = 0 hours
Latitude/Longitude/Altitude (ASL): West 2.405 deg, North 50.931 deg
Telescope: 0.06-m Refractor (Takahashi FS60C)
Filters: Johnson V=4.71 for lambda Aurigae, Cousins Ic= 3.99 for HD32655
Detector: CCD Camera (Type: Starlight Xpress SXV-H9)
Note: as of 01 January 2010 all previous data has been corrected. The following data is an updated list of the correct data. Some V band data was calculated using lambda Aurigae and some HD32655. It appears HD32655 may be variable. For data 94 August 2010 and after the comparison stars used were HD 72328 for V band with magnitude V= 7.64 and HD 32655 for Ic band with Ic= 5.65.

Date	RJD	V mag	SD	Ic	SD
03/04 May 2011	5685.3786	3.344	0.008	2.616	0.005
08/09 May 2011	5690.4046	3.261	0.017	2.586	0.007
09/10 May 2011	5691.3828	3.295	0.021	2.572	0.007
10/11 May 2011	5692.4173	3.266	0.018	2.584	0.006
18/19 May 2011	5700.4630	3.181	0.040	2.511	0.029
22/23 May 2011	5704.3973	3.226	0.018	2.501	0.006
24/25 May 2011	5706.4106	3.218	0.017	2.498	0.014
30/31 May 2011	5712.4200	3.159	0.026	2.450	0.019
03/04 June 2011	5716.4169	3.134	0.013	2.436	0.018
07/08 June 2011	5731.4270	3.134	0.015		
29/30 June 2011	5742.4645	3.029	0.017	2.383	0.025
30/31 June 2011	5743.4927	3.034	0.030	2.375	0.010
03/04 July 2011	5746.5333	3.021	0.017	2.365	0.022
14/15 July 2011	5757.5100	3.011	0.015	2.358	0.006

RJD = JD - 2,450,000

Dr. Mukund Kurtadikar, Jalna Education Society Observatory (JESO)
Maharashtra, India
1. Dr.M.L. Kurtadikar, J.E.S.College, Jalna 431 203, India.
2. A.N. Ardad, Shiv Chatrapati College, Aurangabad 431 003, India.
3. Dr.P.M. Kokne, Barwale College , Jalna 431 203.
4. A.D. Dashrath, High Tech Polytechnic and Eng. College, Aurangabad.
5. S.K. Pandit, Barwale College , Jalna 431 203.
Postgraduate Department of Physics
Jalna Education Society's
R.G.B.Arts , S.B.Lakhotia Commerce & R.Bezonji Science College,Optec SSP-3

Date	JD	V mag	S.D.

RJD = JD - 2,450,000

Laurent Corp, Garden Observatory (GO),
Rodez, France
SBIG ST7 Cooled CCD - temp -20°C
50mm f/2.2 non diaphragmé
Comparizons: 3.261 / 2.949

Date	RJD	V	SD	Rc	SD

RJD = JD - 2,450,000

Jeff Hopkins, Hopkins Phoenix Observatory (HPO)
Phoenix, Arizona USA
Latitude: 33.5017 North, Longitude: 112.2228 West, Altitude: 1097 feet ASL
Time Zone: MST (UT -7) Telescope: C-8 8" SCT, Filter Set: UBV Standard
Detector: 1P21 PMT in Photon Counting Mode, Differential Photometry
lambda Aurigae as Comparison star: V= 4.71; B= 5.34; U= 5.46
Data transformed and corrected for nightly extinction.

UT Date	RJD	U	SD	B	SD	V	SD

RJD = JD - 2,450,000

Hans-Goran Lindberg, Kaerrbo Observatory (KO)
Skultuna, Sweden
Observation using: (50 mm fl camera lens, HX-516 B/W Camera, y2-filter
Exp 30*3 sec, .fits images stacked, TeleAuto software, with Superstar
Comp star lambda Aurigae at V= 4.71. **RJD = JD - 2,450,000**

RJD	CV
5692.4569	3.303
5703.4513	3.274
5707.4592	3.271
5715.4542	3.223
5719.4549	3.149

Snaevarr Gudmundsson, Lindarberg Observatory (LO)
Hafnarfjordur, Iceland
Location (WGS 84) Latitude: +64d 03.740 Longitude: 21d 55.297
Optec SSP-3 on 12" Meade LX 200

Double Date	RJD	V	#	SD	X

RJD = JD - 2,450,000

Nils Karlsen, **Nils Karlsen Observatory (NKO)**
Umea, Sweden
Latitude 63, Longitude 19 east,
EOS 1000D, Obj 18-55mm, TeleAuto. Photometri, 2" and 5" exp 6

Date	RJD	V mag	SD
09/10 May 2011	5691.4583	3.129	0.130

RJD = JD - 2,450,000

Robert E. Stencel, University of Denver (RES)
Denver, Colorado USA
DSLR V Band Data, Comparison Star eta Aurigae assumed to be V-3.17

RJD	V	SD
5683.65	3.50	0.07
5685.65	3.45	0.05
5688.65	3.37	0.13

RJD = JD - 2,450,000

Tom Pearson (TP)
Virginia Beach, Virginia USA
DSLR Canon 20 D, 400 ISO, f5.6, 58 mm lens/70 mm FL,
Exposure 5 seconds 30 Images Stacked

UT Date	RJD	V Mag	SD

RJD = JD - 2,450,000

Thomas Karlsson, Varberg Observatory (VO)
Varberg, Sweden
Observation using: Canon 450D 6 second exposures EF 35 - 80 mm
Comparison star is lambda Aurigae V= 4.705

Date	RJD	V	#	SD	X
29/30 April 2011	5681.3799	3.389		0.009	
07/08 May 2011	5689.4164	3.342		0.026	
08/09 May 2011	5690.4174	3.332		0.031	
11/12 May 2011	5693.4340	3.285		0.011	
17/18 May 2011	5699.4417	3.302		0.030	
19/20 May 2011	5701.4616	3.281		0.035	
20/21 May 2011	5702.4451	3.262		0.031	
02/03 June 2011	5715.4632	3.202		0.033	
05/06 June 2011	5718.4604	3.139		0.067	
12/13 June 2011	5725.4625	3.173		0.030	
07/08 July 2011	5750.4667	3.075	3	0.019	4.040
08/09 July 2011	5751.4819	3.062	5	0.027	3.683
19/20 July 2011	5762.4576	3.053	10	0.026	3.752
20/21 July 2011	5763.4611	3.077	10	0.001	3.400

RJD = JD - 2,450,000

Donald Collins, Warren Wilson College (WWC)
Ashville, North Carolina USA
DSLR - Canon XT1, 35 mm lens , f 5.6

Date	RJD	V mag	SD	B mag	SD

RJD = JD - 2,450,000

Gary Frey, North Pines Observatory
Mayer, Arizona, USA
Latitude: +34d 23' 44", Longitude: W112d 14' 19", Elevation: 4530 Feet
Optec SSP-3, B, V, R, Integration Time: 10 Seconds, Telescope: 20/F10 Classical Cassegrain

UT Date	RJD	Ij	SD	Rj	SD
29/30 March 2011	5650.6718	2.601	0.022	3.036	0.023
03/04 April 2011	5655.6550	2.540	0.004	2.966	0.006

RJD = JD - 2,450,000

Spectroscopy Report
by

Robin Leadbeater
Three Hills Observatory
robin_astro@hotmail.com

Overview

Since the last newsletter a further 64 amateur spectra have been submitted to the campaign bringing the total to 758. These latest spectra are listed in the table below and a list of all spectra ca nbe found at http://www.threehillsobservatory.co.uk/epsaur_spectra.htm

This period covers the difficult time around solar conjunction. Thanks to the efforts of Thierry Garrel and Stan Gorodenski, coverage of the Na D and H alpha lines at R~15000-20000 and general coverage at R~10000 was achieved up to the end of May. Here at Three Hills I was able to observe throughout the period resulting in continuous coverage of the K I 7699Å and H alpha line at high resolution.

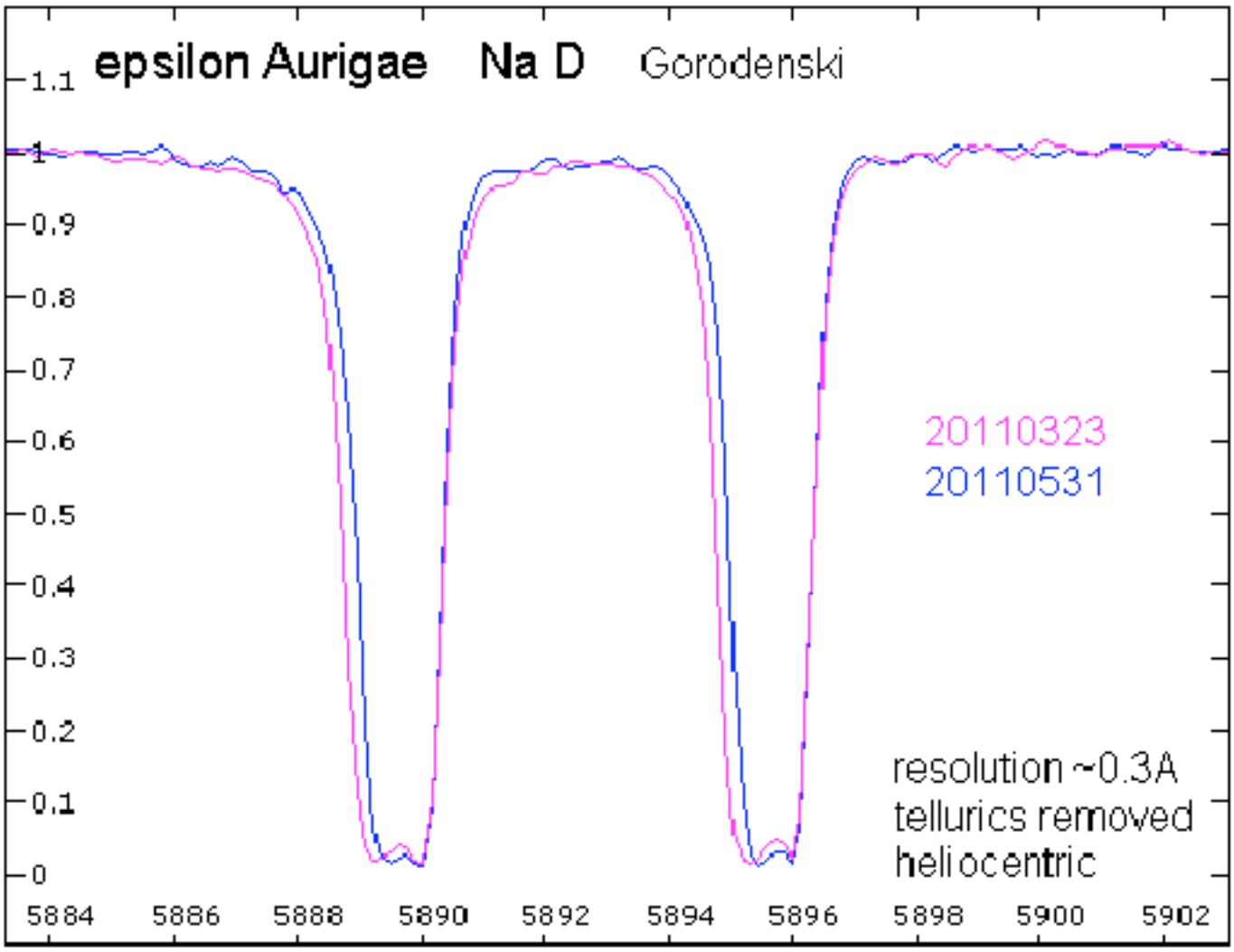
Although the eclipse is over photometrically, the semi transparent part of the eclipsing object extends radially well beyond the opaque region which produces the brightness drop. This extended region is still producing strong absorption lines in the spectrum. These are likely to be detectable for some months yet so continued spectroscopic coverage at all wavelengths and a highest resolution for specific lines is needed at least to the end of the year. Further information for observers wanting to contribute spectra or researchers wishing to use the data can be found here on the main campaign website

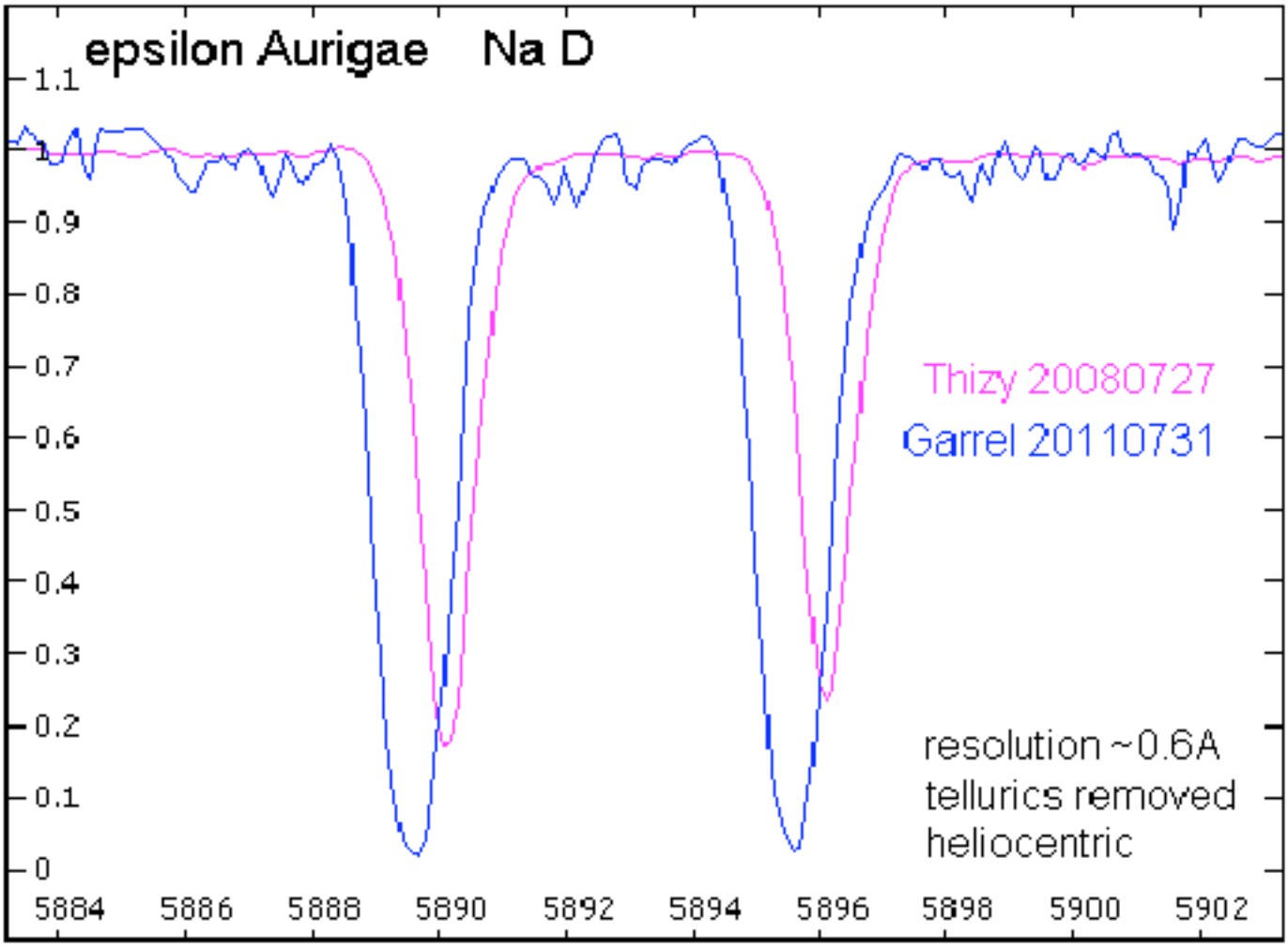
http://www.hposoft.com/EAur09/Robin.html

JD (2400000+)	DATE	TIME (UT)	WAVELENGTH START (A)	WAVELENGTH END A)	RANGE (A)	DISP (A/pixel)	OBSERVER
55773.544	31-Jul-11	01:03	4520	6880	2360	0.1	Garrel
55772.595	30-Jul-11	02:17	7675	7720	45	0.13	Leadbeater
55772.386	29-Jul-11	21:16	7675	7720	45	0.13	Leadbeater
55769.594	27-Jul-11	02:15	7675	7720	45	0.13	Leadbeater
55767.593	25-Jul-11	02:14	7675	7720	45	0.13	Leadbeater
55767.411	24-Jul-11	21:52	6525	6605	80	0.13	Leadbeater
55766.585	24-Jul-11	02:03	6525	6605	80	0.13	Leadbeater
55766.409	23-Jul-11	21:49	7675	7720	45	0.13	Leadbeater
55765.585	23-Jul-11	02:02	7675	7720	45	0.13	Leadbeater
55765.397	22-Jul-11	21:32	7675	7720	45	0.13	Leadbeater
55761.424	18-Jul-11	22:10	7675	7720	45	0.13	Leadbeater
55756.442	13-Jul-11	22:36	6525	6605	80	0.13	Leadbeater
55755.514	13-Jul-11	00:20	7675	7720	45	0.13	Leadbeater
55750.468	07-Jul-11	23:14	7675	7720	45	0.13	Leadbeater
55746.447	03-Jul-11	22:44	7675	7720	45	0.13	Leadbeater
55744.433	01-Jul-11	22:24	7675	7720	45	0.13	Leadbeater
55742.461	29-Jun-11	23:04	7675	7720	45	0.13	Leadbeater
55741.453	28-Jun-11	22:52	6522	6602	80	0.13	Leadbeater
55740.467	27-Jun-11	23:12	7675	7720	45	0.13	Leadbeater
55736.489	23-Jun-11	23:44	7675	7720	45	0.13	Leadbeater
55729.467	16-Jun-11	23:13	7675	7720	45	0.13	Leadbeater
55724.499	11-Jun-11	23:59	7675	7720	45	0.13	Leadbeater
55722.382	09-Jun-11	21:10	6500	6610	110	0.17	Garrel
55716.508	04-Jun-11	00:11	7675	7720	45	0.13	Leadbeater
55715.510	03-Jun-11	00:14	7675	7720	45	0.13	Leadbeater
55714.503	02-Jun-11	00:05	7675	7720	45	0.13	Leadbeater
55712.627	31-May-11	03:03	5800	5990	190	0.13	Gorodenski
55710.335	28-May-11	20:02	5840	5960	120	0.19	Garrel
55709.352	27-May-11	20:27	5840	5960	120	0.19	Garrel
55707.334	25-May-11	20:01	4520	6880	2360	0.1	Garrel
55706.335	24-May-11	20:02	6500	6610	110	0.17	Garrel
55705.501	24-May-11	00:01	7675	7720	45	0.13	Leadbeater
55704.326	22-May-11	19:49	4520	6880	2360	0.1	Garrel
55703.331	21-May-11	19:57	4520	6880	2360	0.1	Garrel
55702.558	21-May-11	01:24	7675	7720	45	0.13	Leadbeater
55700.381	18-May-11	21:09	7675	7720	45	0.13	Leadbeater
55700.325	18-May-11	19:48	4520	6880	2360	0.1	Garrel
55697.343	15-May-11	20:14	4520	6880	2360	0.1	Garrel
55694.332	12-May-11	19:58	7620	7724	104	0.07	Schanne
55693.337	11-May-11	20:05	6500	6610	110	0.17	Garrel
55691.330	09-May-11	19:55	7620	7724	104	0.07	Schanne
55689.628	08-May-11	03:04	5800	5990	190	0.13	Gorodenski
55688.320	06-May-11	19:41	6375	6715	340	0.25	Sarrazin
55686.329	04-May-11	19:54	7620	7724	104	0.07	Schanne
55685.389	03-May-11	21:20	7675	7720	45	0.13	Leadbeater
55685.326	03-May-11	19:50	7620	7724	104	0.07	Schanne
55684.382	02-May-11	21:10	7675	7720	45	0.13	Leadbeater
55682.381	30-Apr-11	21:09	7675	7720	45	0.13	Leadbeater
55682.349	30-Apr-11	20:22	4520	6880	2360	0.1	Garrel
55680.382	28-Apr-11	21:10	7675	7720	45	0.13	Leadbeater
55680.325	28-Apr-11	19:48	7620	7724	104	0.07	Schanne
55678.390	26-Apr-11	21:22	7675	7720	45	0.13	Leadbeater
55678.386	26-Apr-11	21:16	6500	6610	110	0.17	Garrel
55677.617	26-Apr-11	02:48	5800	5990	190	0.13	Gorodenski
55677.364	25-Apr-11	20:44	7675	7720	45	0.13	Leadbeater

Sodium D lines

Although we are now several week after photometric 4th contact, absorption due to eclipsing object remains strong in the Na D lines, with a significant blue shifted component blended with the outside eclipse component. The two components are partially split in Gordenski's high resolution spectra but are not resolved in Garrel's lower resolution spectrum from 31st July

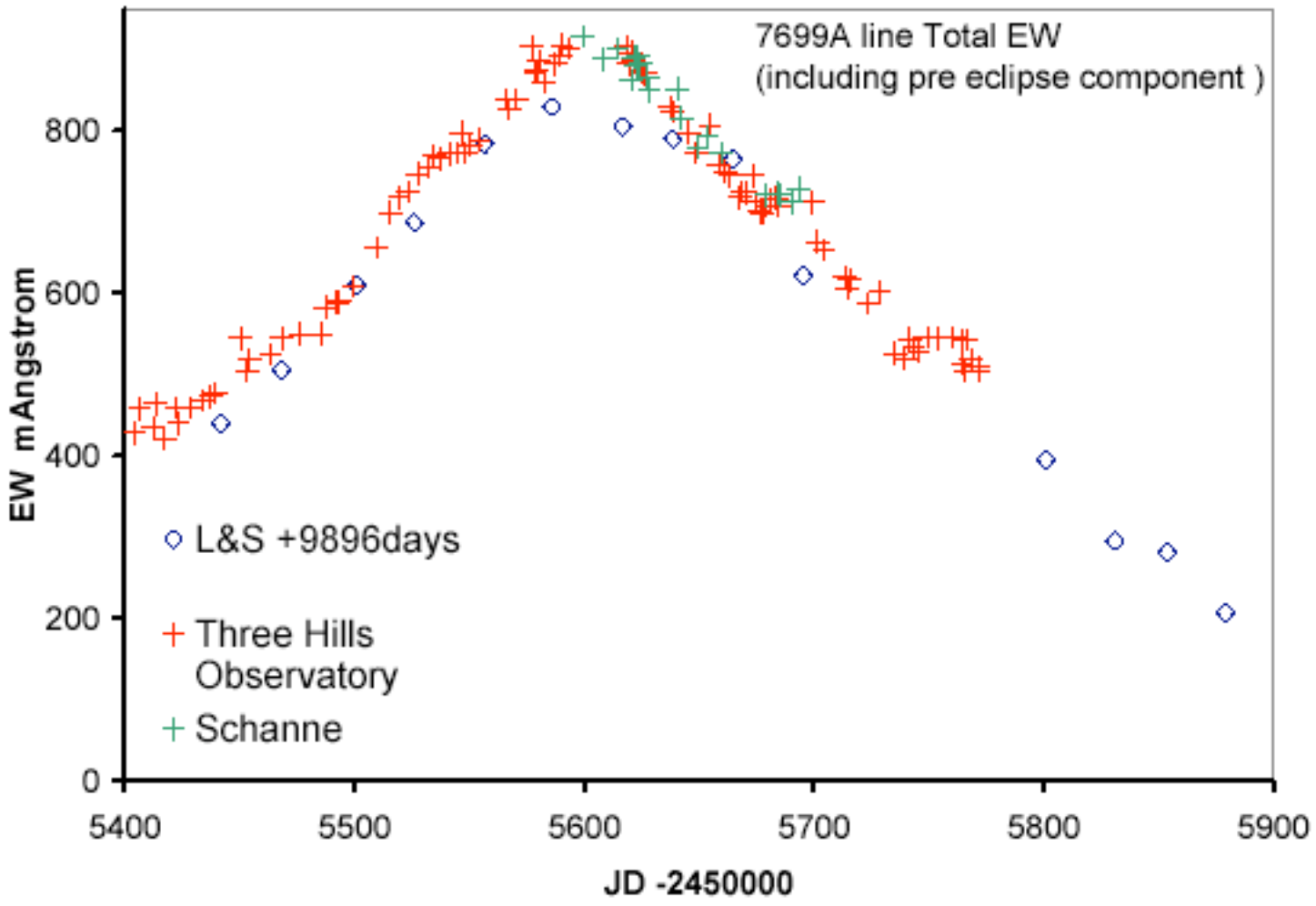




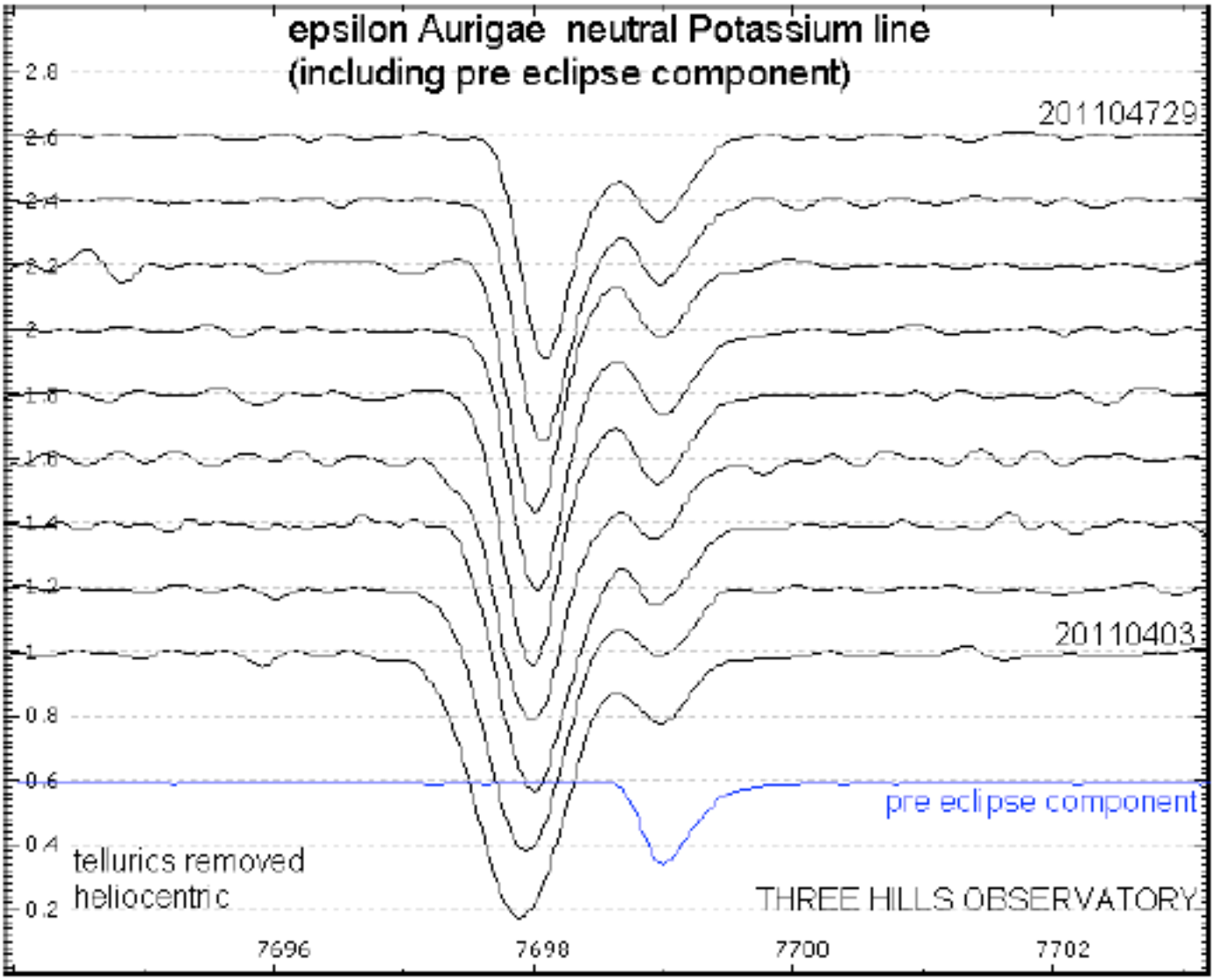
How much longer will we be able to detect the eclipsing disc in this line? For several more months probably and maybe even into next year.

The 7699Å Potassium line

The total Equivalent Width (EW) of the 7699Å Potassium has continued to decrease overal but with two pauses, the second coinciding with photometric 4th contact. These were not seen by Lambert and Sawyer previously but this may be due to lack of coverage around this time during the previous eclipse.

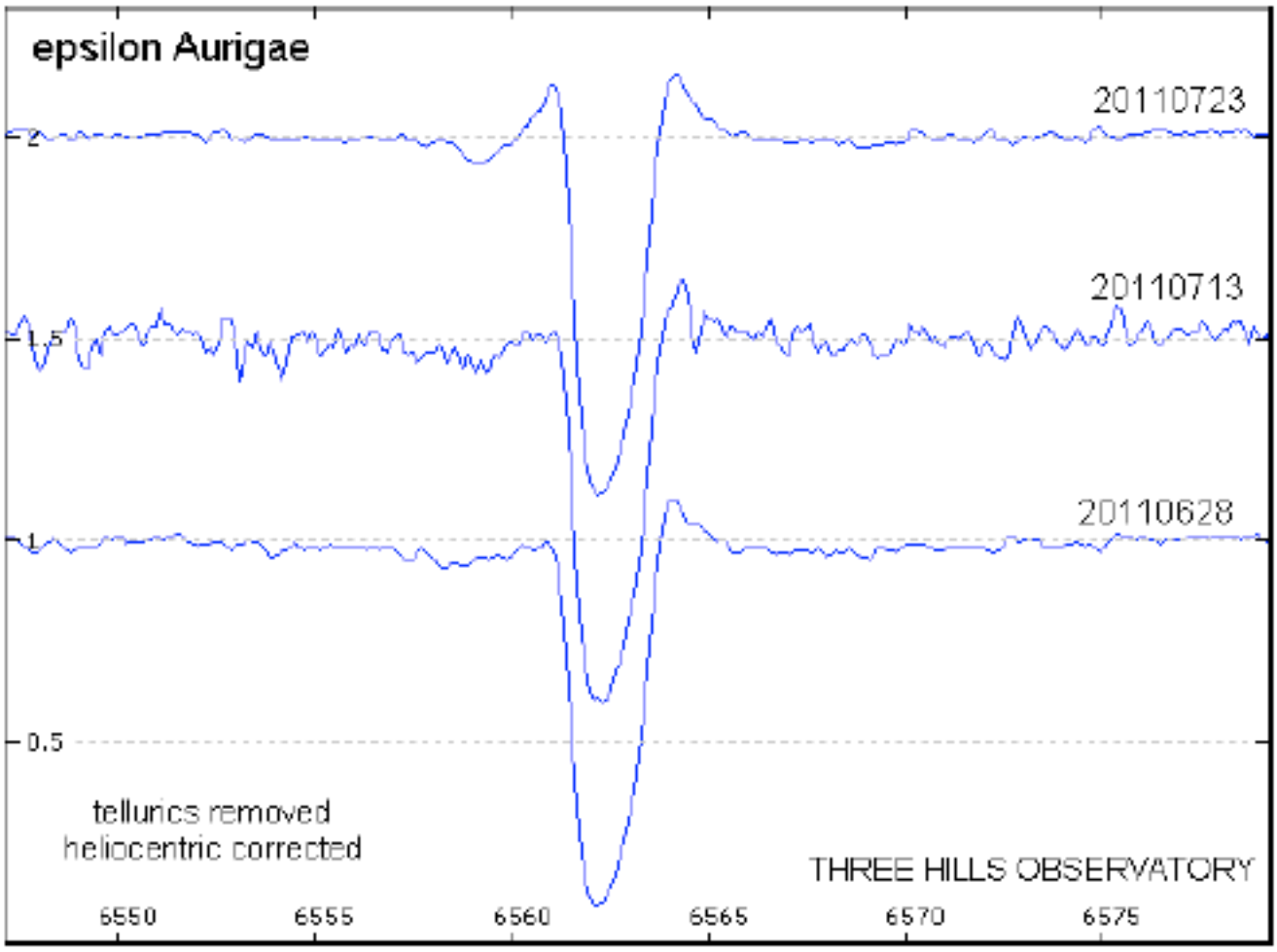


The maximum absorption measured in the line core continues to be high at over 70% absorption currently. The blue shifted component from the eclipsing disc is well separated from the smaller outside eclipse component.


epsilon Aurigae neutral Potassium line
(including pre eclipse component)
20110729
20110403
pre eclipse component
tellurics removed
heliocentric
THREE HILLS OBSERVATORY
2.8
2.6
2.4
2.2
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
7696
7698
7700
7702

Hydrogen alpha

The blue edge emission component finally returned between 13th and 23rd July 2011



This is later than seen by Wright and Kushawa during the 1957 eclipse who saw the emission returning between observations made February and April 1957, corresponding to 27 April and 27 June 2011 for this eclipse.

The return of the blue edge emission marks a return to a line profile typical of that seen pre eclipse, though it should be noted that the line profile varies significantly outside eclipse.

The Future

Although photometrically the system has returned to normal brightness, there will be evidence of the eclipsing object in the spectrum for some months yet. so observers are encouraged to continue taking spectra regularly until at least the end of 2011.

Several times during this eclipse the question has come up “Is this particular phenomenon unique to the eclipse or is this behaviour also seen outside eclipse” To answer this, outside eclipse base line observations will be needed so observers are urged to keep epsilon Aurigae on their monitoring list in the coming years.

From Dr. Bob

Dr. Robert E. Stencel . Co- Editor
University of Denver Astronomy Program
<robert.stencel@du.edu>

Whereas optical eclipse ended this summer, spectroscopic activity persists. As noted elsewhere, the ~340 day duration between first contact (2009 Aug, RJD 55,060) and mid-eclipse (2010 July, RJD 55,400) implies – assuming symmetry – that fourth contact would occur about RJD 55,740, 2011 mid-July. The light curve showed a rapid egress rise starting in 2011 late Feb, which was not symmetric relative to ingress. Interestingly, the blue emission wing of hydrogen alpha returned in mid-July (Leadbeater et al.), coincidentally at the time predicted when the F star would emerge from behind the "C ring" defined by steps in the 7699Å K I line (Leadbeater and Stencel - http://arxiv.org/abs/1003.3617).

Fortunately, several interesting observations with large telescopes were obtained this season, including a mid-infrared spectrum using the BASS instrument on NASA IRTF at Mauna Kea (Sitko et al.). The goal was to find silicate particles, but none were obvious. If the disk is sublimating due to heating from the F star, and this is the presumed cause of the molecular CO gas seen since mid-eclipse, then some solid particles might be liberated from surfaces too, but apparently not the case. Another observation obtained during summer 2011 was a VEGA instrument spectro-interferogram with the CHARA Array at Mt. Wilson (Mourard et al.).

A set of large telescope observations are planned for autumn, and your continued photometric and spectroscopic data are still needed to place these in a larger context. These include MIRC 6 telescope imaging at the CHARA Array in 2011 Oct/Nov/Dec; near-IR spectra with SpeX at IRTF in Sept/Nov and Dec, and mid-IR spectra with MIRAC at MMT in November. Again, many thanks to all the observers for making this an extremely well covered eclipse cycle!

Have you compiled an observing record and would like to brag about it? AAVSO is planning a special edition highlighting epsilon Aurigae studies, in their online journal, JAAVSO, http://www.aavso.org/publications/jaavso/ and a call for papers is forthcoming, with a spring 2012 due date. The newsletter editors will be happy to assist you in your report.

As mentioned by Jeff, a European meeting on unusual binary stars will be held in Hvar, Croatia in July 2012, featuring a day on results of the epsilon Aurigae Campaign. While travel funds are a concern, you might consider the opportunity for an "astronomical vacation" on the Dalmatian Coast of the Adriatic Sea.

Meeting Announcement

While not indicated in the announcement, Dr. Bob says there will be at least one special session on epsilon Aurigae.

XIth HVAR ASTROPHYSICAL COLLOQUIUM
The Most Mysterious Binaries:
Significance for Astrophysics

Hvar, Croatia
2 - 6 July 2012

SCIENTIFIC ORGANIZING COMMITTEE:
Edward Guinan (co-chair)
Domagoj Ruˇzdjak (co-chair)
Robert Stencel (co-chair)
Philip Bennett
Petr Harmanec
Zeljko Ivezic
Pavel Koubsk´y
Ernst Paunzen

LOCAL ORGANIZING COMMITTEE:
Davor Sudar (chair)
Hrvoje Bozic
Domagoj Ruzdjak
Katica Vucetic

SCIENTIFIC SESSIONS:
• Binaries as Tests of Stellar Evolution Models
• Extreme and Unusual Binaries
• Rapid Phases of Binary Evolution
• Be Binaries
• Highest to Lowest Mass Binaries

CONFERENCE MEETING PLACE:
Town Loggia, Hvar, Croatia

CONTACT ADDRESS:
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http://www.geof.hr/oh/meetings/
Hvar Observatory
POB 18
HR-21450 Hvar
Phone/Fax: ++ 385 (21) 549 246

Registration

The participants shall fill in the Registration form which can be found at: http://www.geof.hr/oh/meetings/registration.html or send all the relevant information to the Contact address. The registration fee of 150 EUR will be requested.

The deadline for registration is May 1, 2012.

Travelling and Accommodation

Split on the mainland (served by an international airport) is connected with the island of Hvar by several local ship lines. Detailed information can be found at the site: www.jadrolinija.hr

Information about the island of Hvar and accommodation possibilities in Hvar can be found under: www.adriatica.net, www.suncanihvar.com and www.hvar.hr

Venue and Climate

The meeting will be held in the medieval town Hvar situated on the Mediterranean island Hvar. The weather in July is usually fine and calm with average daytime temperatures between 25 and 30C. The sea temperature is above 20C.

Additional Information

The number of participants is limited to 60 to 70 persons.

For oral presentations an overhead projector and video beamer will be provided. Authors of posters can give a brief presentation (about 5 min) according to the schedule given in the Programme.

All contributions will be published in a special volume of the Central European Astrophysical Bulletin.

For further information, see http://www.geof.unizg.hr/oh/index.html.

Programme

Monday, July 2, 2012

9:00 – 9:30	Opening Addresses
9:30 – 13:00	Binaries as Tests of Stellar Evolution Models
16:00 – 17:00	Poster Session
17:00 – 19:00	Binaries as Tests of Stellar Evolution Models

Tuesday, July 3, 2012

9:00 – 13:00	Extreme and Unusual Binaries
16:00 – 17:00	Poster Session
17:00 – 19:00	Extreme and Unusual Binaries

Wednesday, July 4, 2012

9:00 – 13:00	Rapid Phases of Binary Evolution
16:00 – 17:00	Round Table Discussions
17:00 – 19:00	Rapid Phases of Binary Evolution

Thursday, July 5, 2012

9:00 – 13:00	Be Binaries
16:00 – 17:00	Round Table Discussions
17:00 – 19:00	Be Binaries

Friday, July 6, 2012

9:00 – 13:00	Highest to Lowest Mass Binaries
16:00 – 17:00	Round Table Discussions
17:00 – 19:00	Highest to Lowest Mass Binaries

Interesting Papers

OPTICAL POLARIZATION OBSERVATIONS OF EPSILON AURIGAE DURING THE 2009-2011 ECLIPSE,
by Gary Henson, East Tennessee State Univ. at the Stellar Polarimetry meeting, June 2011:

ABSTRACT: Polarization observations of the unique eclipsing binary, Epsilon Aurigae, are being carried out using a new dual beam imaging polarimeter on the 0.36m telescope of the Harry D. Powell Observatory. This bright binary system has a 27.1 year period with an eclipse duration of nearly two years. The primary is known to be a pulsating F0 supergiant with the secondary a large and essentially opaque disk. We report here on the characteristics of the polarimeter and on the status of V-band observations that are being obtained to better understand the system's geometry and the nature of its two components. In particular, the characteristics of the secondary disk remain a puzzle. Results can be compared to polarization observations from the 1982-1984 eclipse.

POLARIMETRY OF EPSILON AURIGAE FROM MID ECLIPSE TO THIRD CONTACT
by Gary Cole, Starphysics Observatory, Reno, NV, 89511, presented at the Society for Astronomical Sciences Symposium, May 2011 (garycole@mac.com
www.starphysics.com/Starphysics/Polarimetry.html).

ABSTRACT: In a previous paper, the author discussed the construction of an automated dual beam imaging polarimeter and of observations made in the November 2009 to February 2010 period. Here, we discuss observations and instrumental improvements that span the period from late August 2010 through third and into fourth contacts in Spring 2011.

INFRARED STUDIES OF EPSILON AURIGAE IN ECLIPSE
by Robert E. Stencel, Brian K. Kloppenborg and Randall J. Wall (Dept. Physics & Astronomy, University of Denver), Jeffrey L. Hopkins (Hopkins Phoenix Observatory), Steve B. Howell (National Optical Astronomy Observatories), Donald W. Hoard (Spitzer Science Center, California Institute of Technology), John Rayner, Schelte Bus and Alan Tokunaga (Institute for Astronomy, University of Hawaii), Michael L. Sitko (Dept. Physics, Cincinnati University), Ray W. Russell and David K. Lynch (The Aerospace Corporation), Suellen Brafford, Esq., Heidi Hammel and Barbara Whitney (Space Science Institute), Glenn Orton and Padma Yanamandra-Fisher (Jet Propulsion Laboratory, California Institute of Technology), Joseph L. Hora (Harvard-Smithsonian Center for Astrophysics), Philip Hinz, William Hoffman and Andrew Skemer (Steward Observatory, Department of Astronomy, University of Arizona). Submitted to the Astronomical Journal.

ABSTRACT: We report here on a series of medium resolution spectro-photometric observations of the enigmatic long period eclipsing binary epsilon Aurigae during its eclipse interval 2009-2011, using near-infrared spectra obtained with SpeX on IRTF, mid-infrared spectra obtained with BASS on AOES and IRTF, MIRSI on IRTF and MIRAC4 on MMT, along with mid-infrared photometry using MIRSI on IRTF and MIRAC4 on MMT, plus 1995-2000 timeframe published photometry and data obtained with Denver's TNTCAM2 at WIRO. The goals of these observations included: (1) comparing eclipse depths with prior eclipse data, (2) confirming the re-appearance of CO absorption bands at and after mid-eclipse, associated with sublimation in the disk, (3) seeking evidence for any mid-infrared solid state spectral

features from particles in the disk, and (4) providing evidence that the externally-irradiated disk has azimuthal temperature differences. IR eclipse depths appear similar to that observed during the most recent (1983) eclipse, although evidence for post-mid-eclipse disk temperature increase is present, due to F star heated portions of the disk coming into view. Molecular CO absorption returned 57 days after nominal mid-eclipse, but was not detected at mid-eclipse plus 34 days, narrowing the association with differentially heated sub-regions in the disk. Transient He I 10830Å absorption was detected at mid-eclipse, persisting for at least 90 days thereafter, providing a diagnostic for the hot central region. The lack of solid-state features in Spitzer IRS, BASS and MIRAC spectra to date suggests the dominance of large particles (micron-sized) in the disk. Based on these observations, mid-infrared studies out of eclipse can directly monitor and map the disk thermal changes, and better constrain disk opacity and thermal conductivity.

EFFECTS OF DUST ON LIGHT CURVES OF EPSILON AURIGAE TYPE LIGHT CURVES
by J. Budaj, Astronomical Institute of the Slovak Academy of Sciences,
http://arxiv.org/abs/1107.3517

ABSTRACT: Epsilon Aurigae is one of the most mysterious objects on the sky. Prior modeling of its light-curve assumed a dark, inclined, non-transparent or semi-transparent, dusty disk with a central hole. The hole was necessary to explain the light-curve with a sharp mid-eclipse brightening. The aim of the present paper is to study the effects of dust on the light-curves of eclipsing binary stars and to develop an alternative physical model for epsilon Aurigae type objects which is based on the optical properties of dust grains. The code Shellspec has been modified to calculate the light-curves and spectra of such objects. The code solves the radiative transfer along the line of sight in interacting binaries. Dust and angle dependent Mie scattering were introduced into the code for this purpose.

Our model of epsilon Aurigae consists of two geometrically thick flared disks: an internal optically thick disk and an external optically thin disk which absorbs and scatters radiation. Disks are in the orbital plane and are almost edge-on. We argue that there is no need for an inclined disk with a hole to explain the current eclipse of epsilon Aurigae not even if there is a possible shallow mid-eclipse brightening. It was demonstrated that phase dependent light scattering and the optical properties of the dust can have an important effect on the light-curves of such stars and can even produce a mid-eclipse brightening. This is a natural consequence of the strong forward scattering. It was also demonstrated that shallow mid-eclipse brightening might result from eclipses by nearly edge-on flared (dusty or gaseous) disks.

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Anyone wishing to contribute to the Newsletter, is most welcome.

Please send contributions to me at phxjeff@hposoft.com.

Please send spectroscopic data to Robin Leadbeater at robin@leadbeaterhome.fsnet.co.uk or robin_astro@hotmail.com.

Clear Skies!

Jeff

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